

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

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JUN 26 1995

FEDERAL COMMUNICATIONS COMMISSION  
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In the Matter of )

Amendment of Part 95 of the  
Commission's Rules to allow  
Interactive Video and Data  
Service licensees to provide  
mobile service to subscribers.

) WT Docket No. 95-47  
) RM-8476  
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To: The Commission - Mail Stop 1170

**COMMENTS OF RADIO TELECOM & TECHNOLOGY INC.**

**Introduction**

1. Radio Telecom & Technology Inc. ("RTT") submits these comments in response to the Commission's *Notice of Proposed Rule Making* in the above-captioned proceeding, FCC 95-158, released May 5, 1995 ("NPRM"). This proceeding proposes to permit Interactive Video and Data Service ("IVDS") licensees to provide mobile service to existing fixed subscribers on an ancillary basis. RTT is an IVDS equipment developer and manufacturer. In previous comments responding to RM-8476, RTT expressed concern that this proposal raises technical and potential interference issues, as well as issues relating to the appropriate ultimate uses of IVDS. Those concerns are discussed in more detail here.

2. RTT's main point is that the Commission's proposals are in large part premature at this time. In particular, the Commission should not modify its rules in a way that will divert attention from the primary purpose of IVDS, which is interactive television. Further,

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while the suggested power limit of 100 mW for mobile RTU's is not objectionable if interpreted as an average power limit, as discussed below, it should not be adopted for fixed RTU's. Finally, the Commission should not impose power limits that assume no coordination with television signals being protected from interference without also recognizing the efficacy of RTT's time-sharing technique, which protects television signals from interference by using the time domain rather than by physical separation and power limits.

3. RTT has devoted the last decade to the development of interactive television methods that permit viewers to respond to television programs broadcast by others ("BITv": basic interactive TV), in a transactional manner coordinated with video and sound from a CD player ("TTv": transactional TV), or in ancillary applications such as alarm transmission and remote meter reading and load management for power companies. RTT calls its system "T-NET." The United States and other countries have awarded patents to RTT covering many aspects of the T-NET technology. An important immediate application for T-NET (although not the only application) is in IVDS systems. RTT is a key supplier of two-way interactive television systems for IVDS applications and has contracts to install its T-NET system for IVDS licensees in the eight largest U.S. cities including Boston, New York, Philadelphia, Washington, Houston, Dallas, Los Angeles, and San Francisco. RTT has entered into letters of intent to supply systems for some 125 additional markets. RTT believes it is now the leading equipment supplier to IVDS licensees in the United States.

### **Purpose and Function of IVDS**

4. RTT supports the concept of enhancing the efficiency of and opening new market opportunities for IVDS. Nevertheless, IVDS was created as a two-way, interactive video-related service and should be given an opportunity to develop in that mode before any significant changes are made. IVDS should not be permitted to migrate into a one-way data transmission service without any relation to video, lest it become simply another competitor in the crowded one-way data and two-way messaging markets, which are already adequately served by narrowband PCS<sup>1/</sup> and data broadcast services via FM subcarriers and the TV vertical blanking interval.<sup>2/</sup> IVDS is something new and different and should be preserved as such until it has been tried and tested, rather than being allowed to focus on functions which are already available and are provided for in other spectrum.

5. Accordingly, RTT agrees with the Commission, and urges the Commission to adhere to the tentative conclusions in the NPRM, that mobile IVDS services should be ancillary, using only excess capacity, and these services should be provided only to fixed

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<sup>1/</sup> The upcoming new narrowband and wideband PCS services will be able to provide any kind of one-way or two-way paging or messaging services that the public may desire, even if those services are lucrative enough to attract the attention of existing narrowband PCS and cellular telephone companies.

<sup>2/</sup> Indeed, the already substantial capacity for one-way data on FM subcarriers and TV subcarriers and the television vertical blanking interval may soon be augmented several times over by data-carrying capacity in the main video portion of the television signal. See the *Notice of Proposed Rule Making* in MM Docket No. 95-42, FCC 95-155, released May 2, 1995.

IVDS subscribers.<sup>3/</sup> RTT believes that these safeguards will preserve the main objective of interactive video for which IVDS was created.<sup>4/</sup>

### **Power Limitations for Mobile RTU's**

6. The primary purpose of the power limits in the IVDS rules is to protect television stations on Channel 13 (210-216 MHz) from receiving adjacent-channel interference. The existing rules are structured principally around the IVDS technology of EON Corporation ("EON"), RTT's major competitor, whose system depends on geographic separation from Channel 13 transmitters and power limits to avoid causing interference. However, as the Commission has recognized,<sup>5/</sup> there are other ways to avoid interference, in particular, the T-NET system of transmitting only during the blanking intervals of a nearby Channel 13 television station, so that the video on any TV receiver that is susceptible to interference will be blanked out at the time the IVDS signal arrives.<sup>6/</sup> RTT is gratified that the Commission

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<sup>3/</sup> NPRM at par. 8.

<sup>4/</sup> If IVDS as an interactive video service is launched and fails in the marketplace, it may become appropriate to consider allowing other functions on a primary basis. However, it is premature to draw any conclusions about the ultimate evolution of IVDS, because there are no IVDS systems that have yet been fully deployed. RTT has noticed that the Commission's recent action extending for a year the deadline for lottery winners to meet the initial service benchmark resulted in some of its customers reconsidering the timing of their deployment plans.

<sup>5/</sup> *Interactive Video and Data Service*, 7 FCC Rcd. 1630, 1634, at fn. 51.

<sup>6/</sup> RTT has demonstrated to the Commission, that interference to television receivers can be eliminated by restricting data transmissions to TV channels blanking intervals. See RTT's

(continued...)

has acknowledged this improvement and made provision for admitting some of its benefits through rule waivers (*e.g.*, relaxing CTS height and power limits).<sup>7/</sup>

7. However, the Commission has not taken into account the T-NET method of interference control in its proposal to restrict the power of mobile RTU's to 100 milliwatts or less.<sup>8/</sup> If this power limitation is adopted and interpreted to mean peak power, it will clearly favor EON Corporation, the major competitor to RTT. On the other hand, if it is interpreted as average power in any one transmission or within any one 100 millisecond period, than it will be a more reasonable limitation and will be feasible for the T-NET system. This distinction is important, because the interference potential is not simply a matter of power level only; it also depends on where that power lies in the video waveform which is being protected -- in the visible portion or only in the blanking intervals of the adjacent-channel TV signal. If the IVDS signal is restricted to the blanking intervals, then 100 mW average power is more than sufficient protection, no matter how physically close to a TV receiver an IVDS mobile unit may come.

8. The power issue is directly relevant to the coverage area of an IVDS system. A T-NET system is expected to cover at least a 15-mile radius (700 square miles or more) with only one CTS. Indeed, this feature is a major selling point for RTT in comparison with its

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6/(...continued)

Experimental Report, filed January 23, 1987, under call sign KA2XBE, describing trials with TV Station KSL-TV, Salt Lake City, Utah.

7/ See Note 5, *supra*.

8/ The Commission recognized that RTT might raise this issue. NPRM at par. 8.

competition. A low power RTU device on the order of 100 mW peak power would only cover about 10% of this area or less and thus would not be able to reach a central RTU most of the time. The result would be to require many more CTS's, which would significantly raise the price of a T-NET system. RTT therefore urges the Commission not to limit the power in the manner proposed by EON but instead keep the playing field level by selecting a more flexible power limitation as note above.<sup>9/</sup> The Commission should note that RTT and Oki Electric, its supplier, are currently producing RTU's with a peak transmitter output power of 10 watts (maximum effective radiated power of 20 watts), but the average power is under 100 milliwatts; and these units can be deployed throughout the large service area reached by an RTT CTS.<sup>10/</sup>

9. Accordingly, RTT urges that the final sentence of proposed Section 95.855(a) of the Rules should read:

"No RTU that is designed to be used at itinerant locations may transmit with an ERP exceeding 100 milliwatts average power, or 20 watts peak power, whichever is less."

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<sup>9/</sup> A cellular-type of configuration, such as EON uses, does not face the wide-area coverage problem. RTT urges the Commission to allow the central and cellular technologies to compete fully and fairly, rather than imposing an unnecessary limit on mobile RTU power that burdens only T-NET.

<sup>10/</sup> Nevertheless, as discussed at par. 10, *infra*, it is premature at this time to reduce the power limit for fixed RTU's, pending more experience in the field with IVDS systems.

### **Power Limitation - Fixed RTU's**

10. At paragraph 8 of the NPRM, the Commission raises the question as to "the need to continue to authorize 20 watts power for fixed RTUs." This question poses the same basic issue as the power limitation for mobile RTU's and warrants the same response set forth above. Is the limit 20 watts average power or 20 watts peak power? Twenty watts continuous power, as is permitted presently, is more than ample for any IVDS technology known to RTT. However the Commission must recall that there is a five-second-per-hour time limit on RTU transmissions, which is an important element of protection against TV interference. Given the interference protection afforded by the duty cycle limitation, RTT urges that it is premature at this early date to revisit the question of fixed RTU power level limitations, which were so well argued during the initial IVDS rule making. Thus the current rule should not be modified.<sup>11/</sup>

### **Conclusion**

11. In sum, RTT urges the Commission to preserve the fundamental nature of IVDS as an interactive video and data service, at least until a substantial number of systems are operational and the response of the marketplace has be determined based on actual experience. Further, if mobile RTU's are permitted at all, the 100 mW power limitation

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<sup>11/</sup> The fact that EON has developed "microcells" and voluntarily reduced its RTU power to avoid interference it fears it might cause is not a reason why other systems which have other techniques for avoiding interference should have to do likewise.

should be average rather than peak power; and the existing 20-watt limit for fixed RTU's, which was selected after previous lengthy debate and consideration and is needed for the T-NET system to operate at maximum efficiency with a minimum number of CTS's, should remain unchanged.

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June 26, 1995

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